

REMARKS

Applicant positively affirms the restriction selection of
5 the claims of Group I, Claims 1 through 9, for prosecution.

The Examiner has objected to wording in the Abstract of the Disclosure.

Applicant has amended the Abstract of the Disclosure to
10 eliminate the objectionable wording; to bring the size of the Abstract within the 150 word limit adopted since the application was filed; and to make the Abstract better reflect the invention as defined in the remaining claims.

15 The Examiner has objected to the drawings for not fully supporting Claim 4.

Applicant responds that Claim 4 is canceled, thus obviating the need to amend the drawings.

20 Claims 2-5 and 7-8 have been rejected under 35 USC 112, second paragraph, as being indefinite. The Examiner has objected to the use, variously, of "cutting" tool, "unitary" tool holder, "axial", "axially aligned", and "high centrations".

Applicant responds that the words lending indefiniteness are
25 deleted from original Claims 2 and 7. Further, Claim 2 is amended to depend from Claim 9; Claims 3-5 are canceled; and Claim 7 is amended to depend from Claim 9 which is believed to be allowable, as described below. No amendment of Claim 8, which depends from Claim 7, is required.

30 Claims 1-2 and 5 have been rejected under 35 USC 102(b) as being anticipated by PCT WO 2001/45883 ('883).

Applicant responds that Claims 1 and 5 are canceled. Claim
35 2 is amended to depend from Claim 9 which is believed to be allowable, as described below.

Claims 1 and 6-8 have been rejected under 35 USC 102(b) as being anticipated by US Patent No. 6,394,466 to Matsumo et al.

Applicant responds that Claims 1 and 6 are canceled. Claim 7 is amended to depend from Claim 9 which is believed to be allowable, as described below. Claim 7 is further amended to recite a longitudinal axis, as kindly suggested by the Examiner. No amendment of Claim 8, which depends from Claim 7, is required.

Claim 3 has been rejected under 35 USC 103(a) as being unpatentable over WO 2001/45883 ('883).

Applicant responds that Claim 3 is canceled.

Claims 4 and 6-9 have been rejected under 35 USC 103(a) as being unpatentable over '883 as applied to Claims 1-3 above, and further in view of US Patent No. 5,582,494 to Cook. This rejection is respectfully traversed.

Applicant responds that Claims 4 and 6 are canceled. Claim 7 is amended to depend from Claim 9. Claim 8, which depends from Claim 7, is not amended.

With regard to Claim 9, the Examiner holds that "'883 doesn't teach the second flat and set screw. However, Cook teaches a tool holder 10 having a tool bit 90 held thereby...see Figure 8, noting that the tool shank includes a flat 98, and also includes a flat 122 that is inclined with respect to the longitudinal axis of the tool bit. Note also that flat 98 is engaged by set screw 28 and that flat 122 is engaged by set screw 120...Therefore it would have been obvious...to have substituted the explicitly-taught set-screws and flats used to mechanically prevent the tool bit from rotating with respect to the tool holder as taught by Cook for the generic 'set screw' taught by '883 for the purpose of providing such a set screw arrangement that prevents backing out of the cutting tool from the tool holder during a machining operation (Cook, col. 2, line 65 through col. 3, line 6)."

Applicant responds that Cook does indeed teach first and second opposed flats 98,122; that flat 122 is inclined with respect to the longitudinal axis of the tool bit; and that flat 98 is engaged by a first set screw 28 and that flat 122 is engaged by a second set screw 120. As the Examiner correctly points out, the flats and set screws are provided, whether in Cook or in '833, for the purpose of providing such a set screw arrangement that prevents backing out of the cutting tool from the tool holder during the machining operation.

Applicant concedes that Applicant's inclined flat 56 is functionally identical to Cook's inclined flat 122, which is entirely intentional. The novel difference between Applicant's claimed invention and the cited prior art lies in the nature of Applicant's second flat 66, which is not functionally identical to Cook's second flat 98. Applicant's second flat 66 addresses a problem in the art not previously recognized by anyone of skill in the art, nor accommodated by prior art second flat 98.

When inserting the heated tool shank into the heated tool holder, it is important the the shank be rotationally oriented immediately and to a high degree of accuracy such that inclined flat 56 is orthogonal to the axis of first bore 52 and set screw 50. Typically, only a few seconds are available to make any rotational adjustment, and the flats are not visible within the holder. Thus, there is no way to know whether the inclined flat is properly presented to bore 52. If the inclined flat is not orthogonal to the bore, rotation of the tool within the holder during use can cause the set screw to become loose and consequently the tool to not be held tightly against rotation in the holder.

The only way to assure that set screw 50 will remain tight is to assure that the flat is orthogonal to the screw axis. This is accomplished in Applicant's claimed invention by providing a second flat 66 and a second set screw 68 in the holder. As fully disclosed by Applicant at page 9, lines 10-18:

Preferably, tool shank 30 is provided with a second

flat 66 extending along a length 67 opposite whistle-notch flat 56, and tool holder portion 22 is provided with a second set screw 68 in a second threaded bore 70 opposite screw 50 and bore 52. Screw 68 is useful in angularly orienting shank 30 for entering into aperture 16 and then maintaining that orientation during the shrink-fit assembly thereto, thereby assuring that flat 56 will be properly presented rotationally to screw 50. After assembly, screw 68 may be removed.

Thus it is seen that the only purpose for second screw 68 is to guide second flat 66 during entry of the shank into the holder. The distance of insertion of screw 68 into the bore of the holder before insertion of the tool shank can be very finely calibrated to provide a highly precise rotational orientation of the tool at which entry is allowed. Screw 68 has no further purpose and may be removed after assembly of the tool into the holder is complete. It is not a retaining element of the final assembly.

Referring to Cook's second flat 98, it will be seen that, unlike Applicant's second flat 66, second flat 98 does not extend to the end of the tool shank as does Applicant's second flat 66. Thus, the prior art tool shank cannot be inserted into the holder with the second screw extending into the holder bore; and thus, prior art flat 98 is useless in orienting and guiding the tool shank into the bore at the proper angular orientation, as disclosed and claimed by Applicant in Claim 9. Further, there is no disclosure or suggestion in any way whatsoever in Cook or '883 to extend the second flat from the end of the tool shank, or to use the second flat to orient the shank as it enters the tool holder.

Claim 9 is amended in independent form to include all the material of original Claims 1 and 6 from which Claim 9 originally depended. Note that Claim 9 is amended to specify that the second flat extends from the end of the tool shank, which clearly distinguishes Claim 9 over the cited prior art second flat. For this reason, Applicant respectfully submits that the rejection of

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Having responded to each and every objection and rejection, and having amended the claims, Applicant respectfully requests early reconsideration of the application and speedy allowance of all remaining claims.

Respectfully submitted,

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